

Integration and tests of the HPC cluster Emmy (NHR@GÖTTINGEN) into the WLCG Tier-2 cluster GoeGrid

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In Short

- Boost of grid computing activities of GoeGrid through extension with NHR cluster Emmy.
- LHC computing activities will be enabled for recent and future research activities.
- The connection of the supercomputer Emmy to GoeGrid pushes modern soft- and hardware to its limits.

More Information

- [1] The ATLAS Experiment at the CERN Large Hadron Collider, <https://iopscience.iop.org/article/10.1088/1748-0221/3/08/S08003>
- [2] Computing for the Large Hadron Collider, doi: 10.1146/annurev-nucl-102010-130059
- [3] ATLAS Tier-2 at the Compute Resource Center GoeGrid in Göttingen, doi:10.1088/1742-6596/331/7/072055
- [4] KET Computing- und Software-Panel, Technische Anforderungen zur Nutzung von NHR-Zentren für Teilchenphysikanwendungen, <https://www.ketweb.de/stellungnahmen/>

Simulations and analyses for the CERN particle collider LHC at Geneva are performed in a worldwide computing grid (WLCG). The University of Göttingen is an important player of the WLCG through the GoeGrid cluster as Tier-2 center operating very successfully since 2008. The highest amounts on storage and computing power are required for this challenging project. Monte Carlo Simulations, reconstruction of real data, calibration tasks and further individual user jobs are computed on GoeGrid with 15,000 Cores and 3 PB of storage. Further runs like the just started Run-3 or the start of the High-Luminosity LHC in 2029 will demand even more resources to be able to understand new physics processes at the CERN Large Hadron Collider (LHC) at Geneva.

Funding

BMBF 05H21MGRC2

DFG Subject Area

409-08

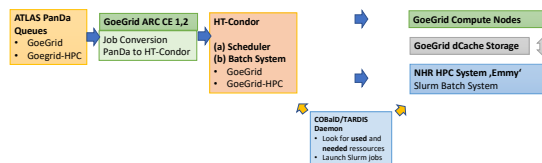


Figure 1: Technical sketch of the connection of Emmy and GoeGrid.

Consequently the empowerment of GoeGrid by additional high-performance nodes is indispensable. The goal is to extend the GoeGrid cluster with computing nodes of the HPC system Emmy and to integrate them indirectly to the WLCG. In context of this proposal the (technical) integration of the Emmy cluster into GoeGrid and first (scaling) tests in context of grid computing for the LHC are targeted.

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<https://pos.li/2h9s67>

